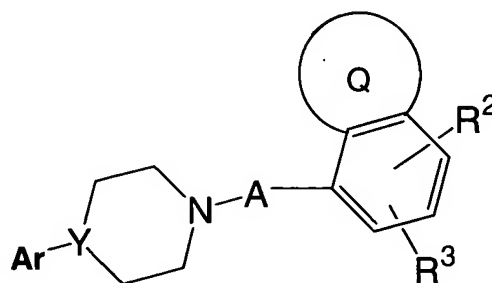


Amendments to the Claims:

1. (Currently Amended) A compound of the formula 1



1

wherein Ar is 1,2-benzisothiazoyl, 1,2-benzisothiazoyl-1-oxide, 1,2-benzisothiazoyl-1-dioxide, 1,2-benzisoxazolyl, naphthyl, pyridyl, quinolyl, isoquinolyl, benzothiadiazolyl, benzotriazolyl, benzoxazolyl, benzoxazolonyl, phthalazinyl, indolyl, indanyl, 1H-indazolyl, or 3-indazolyl, and wherein Ar can optionally be substituted by one ~~or more~~ to four substituents, ~~preferably from zero to four substituents~~, independently selected from halo, ~~preferably chloro or fluoro~~, cyano, nitro, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms and (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms; with the proviso that Ar can not be attached to the piperazine ring via a phenyl ring of Ar;

Y is N ~~or~~ CH;

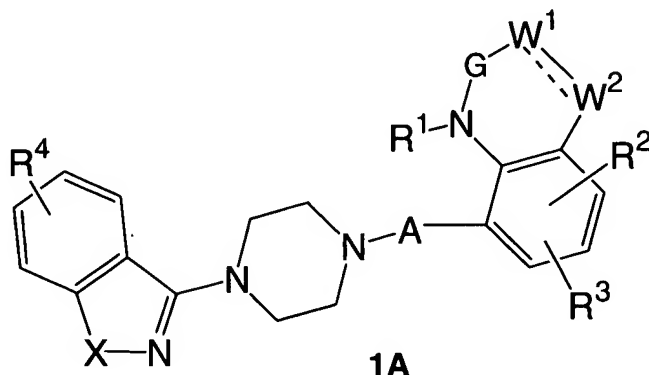
A is -(CH₂)_nCH₂-, wherein n is an integer from one to four, wherein one of the CH₂ groups that is not adjacent to the piperazine nitrogen can optionally be replaced by an oxygen atom;

R² and R³ are independently selected from hydrogen, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms, halogen, nitro, cyano, amino, (C₁-C₆) alkylamino and di-(C₁-C₆) alkylamino; and

ring Q can be a saturated, unsaturated or aromatic five to seven membered monocyclic heterocyclic ring containing from one to three heteroatoms independently selected from oxygen, nitrogen and sulfur, and wherein ring Q can be optionally substituted with from one to four substituents, ~~preferably with two or three substituents~~, independently selected from amino, oxo, hydroxy, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms, aryl, aryl-(C₁-C₆) alkyl-, (C₁-C₆) alkenyl optionally substituted with from one to three fluorine atoms, ~~heteroaryl and heteroaryl-(C₁-C₆) alkyl-~~, wherein the alkyl moieties of the aryl-(C₁-C₆) alkyl- ~~and heteroaryl-(C₁-C₆) alkyl-~~ groups can be optionally substituted with from one to three fluoro atoms, and wherein the aryl ~~and heteroaryl moieties moiety~~ of ~~these this~~ groups can optionally be substituted with one ~~or more to two~~ substituents, ~~preferably from zero to two substituents~~, independently selected from halo, oxo, nitro, amino, cyano, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms and (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms; with the proviso that when ring Q is an aromatic five to seven membered monocyclic heterocyclic ring containing from one to three heteroatoms, the heterocyclic ring cannot be substituted by oxo; and wherein one of the substituents on ring Q can be an alkyl chain that forms a 3 to 6 membered spirocyclic ring with a carbon atom of ring Q that is not adjacent to a heteroatom of ring Q; with the proviso that there can not be more than one oxo substituent on ring Q and there can not be more than one spirocyclic alkyl substituent on ring Q;

or a pharmaceutically acceptable salt thereof.

2. (Currently amended) A compound of the formula



wherein X is sulfur, SO, SO₂, oxygen, or NR;

R is hydrogen, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms, aryl, -C(O)(C₁-C₃) alkyl, or -C(O)(C₁-C₃) alkoxy;

A is -(CH₂)_nCH₂-, wherein n is an integer from one to four, wherein one of the CH₂ groups that is not adjacent to the piperazine nitrogen can optionally be replaced by an oxygen atom;

R¹, R⁵, R⁶, R⁷, and R⁸ are independently selected from hydrogen, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms, aryl, aryl-(C₁-C₆) alkyl-, (C₁-C₆) alkenyl optionally substituted with from one to three fluorine atoms, heteroaryl and heteroaryl-(C₁-C₆) alkyl-, wherein the alkyl moieties of the aryl-(C₁-C₆) alkyl- and heteroaryl-(C₁-C₆) alkyl groups can be optionally substituted with from one to three fluoro atoms, and where the aryl and heteroaryl moieties of these groups can optionally be substituted with one or more to two substituents, ~~preferably from zero to two substituents~~, independently selected from halo, nitro, amino, cyano, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms and (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms;

or R¹ is ZR⁹ wherein Z is -C(O)-, -C(O)O-, -C(O)NH-, -S(O)₂- or -S(O)₂NR¹⁰, wherein the hyphen to the left of each of the foregoing moieties represents the bond to NR¹ in structural formula 1A, and the hyphen to the right of each of the foregoing moieties represents the bond to R⁹ in structural formula 1A;

R², R³ and R⁴ are independently selected from hydrogen, (C₁-C₆) alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆) alkoxy optionally substituted with from one to three fluorine atoms, hydroxy, halogen, nitro, cyano, amino, (C₁-C₆) alkylamino and di-(C₁-C₆) alkylamino;

G is -C(=O)- or CH₂;

W¹ is C(R⁵)(R⁶), CHN(R⁵)(R⁶), CHC(=O)NR⁵R⁶ or C(OH)(R⁵);

W² is C(R⁷)(R⁸), CHN(R⁷)(R⁸), CHC(=O)NR⁵R⁶ or C(OH)(R⁷);

the broken line extending from W¹ to W² represents an optional double bond;

or when W^1 is $C(R^5)(R^6)$ and W^2 is $C(R^7)(R^8)$, then one of R^5 or R^6 and one of R^7 or R^8 can form, together with the carbon to which it is attached and together with another of the R^5 , R^6 , R^7 , or R^8 that is present and attached to a carbon atom, a three to seven membered saturated carbocyclic ring; and with the proviso that when there is a double bond between W^1 and W^2 , then: (a) if W^1 is $C(R^5)(R^6)$, either R^5 or R^6 is absent; and (b) (e) if W^2 is $C(R^7)(R^8)$, either R^7 or R^8 is absent;

~~or one of R^5 , R^6 , R^7 , and R^8 , if present, that is attached to a carbon atom, can form, together with the carbon to which it is attached and together with another of R^5 , R^6 , R^7 , and R^8 that is present and attached to a carbon or nitrogen atom, and the carbon or nitrogen atom to which it is attached, a three to seven membered saturated or unsaturated carbocyclic or heterocyclic ring; and with the proviso that when there is a double bond between W^1 and W^2 , then: (a) if W^1 is $C(R^5)(R^6)$, either R^5 or R^6 is absent; and (b) if W^1 is $CHN(R^5)(R^6)$, either the H atom attached to the ring carbon or R^5 or R^6 is absent; and (c) if W^1 is $C(OH)(R^5)$, either the OH group attached to the ring carbon or R^5 is absent; (d) if W^1 is $CHC(=O)NR^5R^6$, either the hydrogen attached to the ring carbon or $C(=O)NR^5R^6$ is absent; (e) if W^2 is $C(R^7)(R^8)$, either R^7 or R^8 is absent; (f) if W^2 is $CHN(R^7)(R^8)$, either the H atom or R^7 or R^8 is absent; (g) if W^2 is $C(OH)(R^7)$, either the OH group or R^7 is absent; and (h) if W^1 is $CHC(=O)NR^7R^8$, either the hydrogen attached to the ring carbon or $C(=O)NR^7R^8$ is absent;~~

and the pharmaceutically acceptable salts of such compounds.

3. (Original) A compound according to claim 1 that is selected from the following compounds and their pharmaceutically acceptable salts:

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4,4-dimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-1,4,4-trimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-6-fluoro-4,4-dimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-3,4-dihydro-1H-quinolin-2-one hydrochloride;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-3,3-dimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-phenyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-3-methyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-3,4-dimethyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-methyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-phenyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-trifluoromethyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4,4,5-methyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-6-chloro-4,4-dimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[3-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-propyl]-6-chloro-4,4-dimethyl-3,4-dihydro-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-isopropyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-ethyl-1H-quinolin-2-one;

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-4-propyl-1H-quinolin-2-one; and

8-[2-(4-1,2-Benzisothiazol-3-yl-piperazin-1-yl)-ethyl]-3-ethyl-4-methyl-1H-quinolin-2-one.

4. (Original) A compound according to claim 2 wherein A is an alkylene group and n is one.

5. (Original) A compound according to claim 2 wherein R⁴ is hydrogen and one or both of R² and R³ are hydrogen.

6. (Original) A compound according to claim 2 wherein R¹, R⁵, R⁶, R⁷ and R⁸ are selected, independently, from hydrogen and (C₁-C₃)alkyl.

7. (Original) A compound according to claim 2, wherein one or both of R² and R³ are hydrogen.

8. (Currently amended) A pharmaceutical composition for treating a disorder or condition selected from single episodic or recurrent major depressive disorders, dysthymic disorders, depressive neurosis and neurotic depression, melancholic depression including anorexia, weight loss, insomnia, early morning waking or psychomotor retardation; atypical depression (or reactive depression) including increased appetite, hypersomnia, psychomotor agitation or irritability, seasonal affective disorder and pediatric depression; bipolar disorders or manic depression, for example, bipolar I disorder, bipolar II disorder and cyclothymic disorder; conduct disorder; attention deficit hyperactivity disorder (ADHD); disruptive behavior behavioral disturbances associated with mental retardation, autistic disorder, and conduct disorder; anxiety disorders such as panic disorder with or without agoraphobia, agoraphobia without history of panic disorder, specific phobias, for example, specific animal phobias, social anxiety, social phobia, obsessive compulsive disorder, stress disorders including post traumatic stress disorder and acute stress disorder, and generalized anxiety disorders; borderline personality disorder; schizophrenia and other psychotic disorders, for example, schizophreniform disorders, schizoaffective disorders, delusional disorders brief psychotic disorders, shared psychotic disorders, psychotic disorders with delusions or hallucinations, psychotic episodes of anxiety, anxiety associated with psychosis, psychotic mood disorders such as severe major depressive disorder; mood disorders associated with psychotic disorders such as acute mania and depression associated with bipolar disorder; mood disorders associated with schizophrenia; delerium, dementia, and amnestic and other cognitive or neurodegenerative disorders, such as Parkinson's disease (PD), Huntington's disease (HD), Alzheimer's disease, senile dementia, dementia of the Alzheimer's type, memory disorders, loss of executive function, vascular dementia, and other dementias, for example, due to HIV disease, head trauma, Parkinson's disease, Huntington's disease, Pick's disease, Creutzfeldt Jakob disease, or due to multiple etiologies; movement disorders such as akinesias, dyskinesias, including familial paroxysmal dyskinesias, spasticities, Tourette's syndrome, Scott syndrome, PALSYS

~~and akinetic rigid syndrome; extra-pyramidal movement disorders such as medication-induced movement disorders, for example, neuroleptic-induced Parkinsonism, neuroleptic malignant syndrome, neuroleptic-induced acute dystonia, neuroleptic-induced acute akathisia, neuroleptic-induced tardive dyskinesia and medication-induced postural tremor; chemical dependencies and addictions (e.g., dependencies on, or addictions to, alcohol, heroin, cocaine, benzodiazepines, nicotine, or phenobarbital) and behavioral addictions such as an addiction to gambling; and ocular disorders such as glaucoma and ischemic retinopathy in a mammal, including a human, comprising an amount of a compound according to claim 1, or a pharmaceutically acceptable salt thereof, that is effective in treating such disorder or condition, and a pharmaceutically acceptable carrier.~~

9. (Withdrawn) A method for treating a disorder or condition selected from single episodic or recurrent major depressive disorders, dysthymic disorders, depressive neurosis and neurotic depression, melancholic depression including anorexia, weight loss, insomnia, early morning waking or psychomotor retardation; atypical depression (or reactive depression) including increased appetite, hypersomnia, psychomotor agitation or irritability, seasonal affective disorder and pediatric depression; bipolar disorders or manic depression, for example, bipolar I disorder, bipolar II disorder and cyclothymic disorder; conduct disorder; attention deficit hyperactivity disorder (ADHD); disruptive behavior behavioral disturbances associated with mental retardation, autistic disorder, and conduct disorder; anxiety disorders such as panic disorder with or without agoraphobia, agoraphobia without history of panic disorder, specific phobias, for example, specific animal phobias, social anxiety, social phobia, obsessive-compulsive disorder, stress disorders including post-traumatic stress disorder and acute stress disorder, and generalized anxiety disorders; borderline personality disorder; schizophrenia and other psychotic disorders, for example, schizophreniform disorders, schizoaffective disorders, delusional disorders brief psychotic disorders, shared psychotic disorders, psychotic disorders with delusions or hallucinations, psychotic episodes of anxiety, anxiety associated with psychosis, psychotic mood disorders such as severe major depressive disorder; mood disorders associated with psychotic disorders such as acute mania and depression associated with bipolar disorder; mood disorders associated with schizophrenia; delerium, dementia, and amnestic and

other cognitive or neurodegenerative disorders, such as Parkinson's disease (PD), Huntington's disease (HD), Alzheimer's disease, senile dementia, dementia of the Alzheimer's type, memory disorders, loss of executive function, vascular dementia, and other dementias, for example, due to HIV disease, head trauma, Parkinson's disease, Huntington's disease, Pick's disease, Creutzfeldt-Jakob disease, or due to multiple etiologies; movement disorders such as akinesias, dyskinesias, including familial paroxysmal dyskinesias, spasticities, Tourette's syndrome, Scott syndrome, PALSYS and akinetic-rigid syndrome; extra-pyramidal movement disorders such as medication-induced movement disorders, for example, neuroleptic-induced Parkinsonism, neuroleptic malignant syndrome, neuroleptic-induced acute dystonia, neuroleptic-induced acute akathisia, neuroleptic-induced tardive dyskinesia and medication-induced postural tremour; chemical dependencies and addictions (e.g., dependencies on, or addictions to, alcohol, heroin, cocaine, benzodiazepines, nicotine, or phenobarbital) and behavioral addictions such as an addiction to gambling; and ocular disorders such as glaucoma and ischemic retinopathy in a mammal, including a human, comprising administering to a mammal in need of such treatment an amount of a compound according to claim 1, or a pharmaceutically acceptable salt thereof, that is effective in treating such disorder or condition.

10. (Withdrawn) A method according to claim 9, wherein the disorder or condition that is being treated is selected from major depression, single episode depression, recurrent depression, child abuse induced depression, postpartum depression, dysthymia, cyclothymia and bipolar disorder.

11. (Withdrawn) A method according to claim 9, wherein the disorder or condition that is being treated is selected from schizophrenia, schizoaffective disorder, delusional disorder, substance-induced psychotic disorder, brief psychotic disorder, shared psychotic disorder, psychotic disorder due to a general medical condition, and schizophreniform disorder.

Claims 12 – 24 (Canceled)